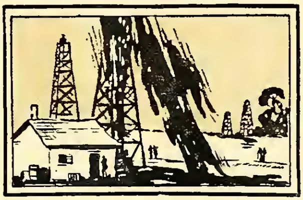
Louisiana Conservation Review



IN THIS ISSUE

State and Federal Shrimp Investigation

Louisiana Landscape
(ILLUSTRATED)

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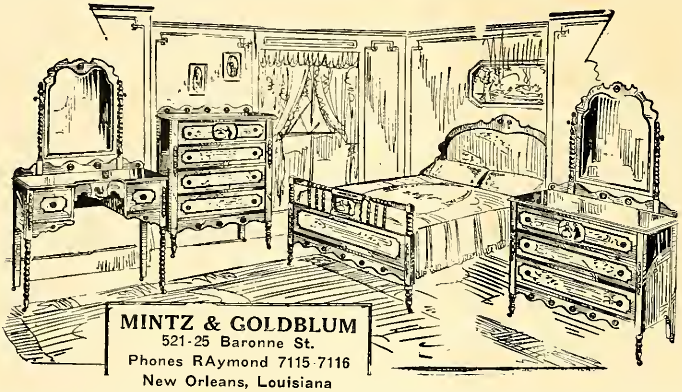

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Louisiana
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ROB'T S. MAESTRI, Commissioner

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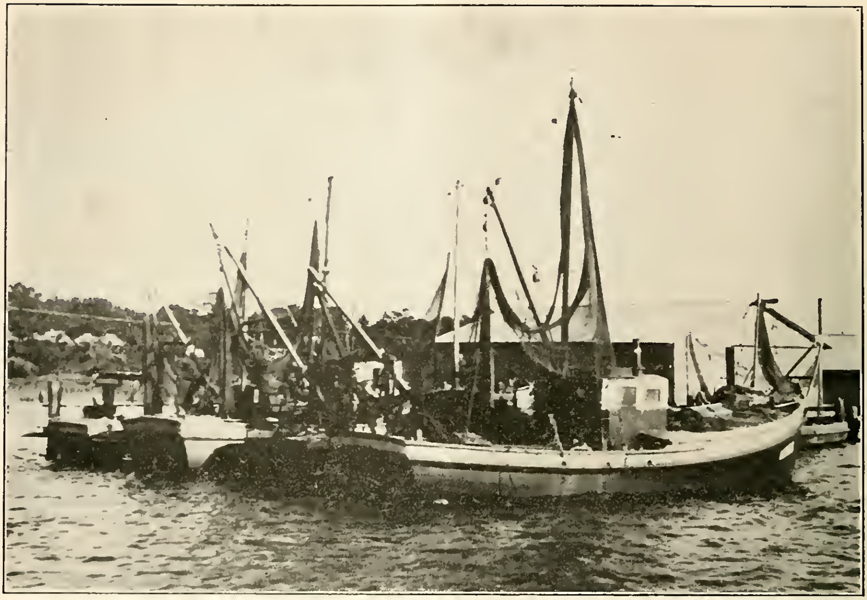


Fig. 1—Shrimp trawlers at Brunswick, Ga. The one in the foreground is very similar to the experimental vessel operated in the co-operative investigation. Commercial gear is used along the whole Georgia coast.

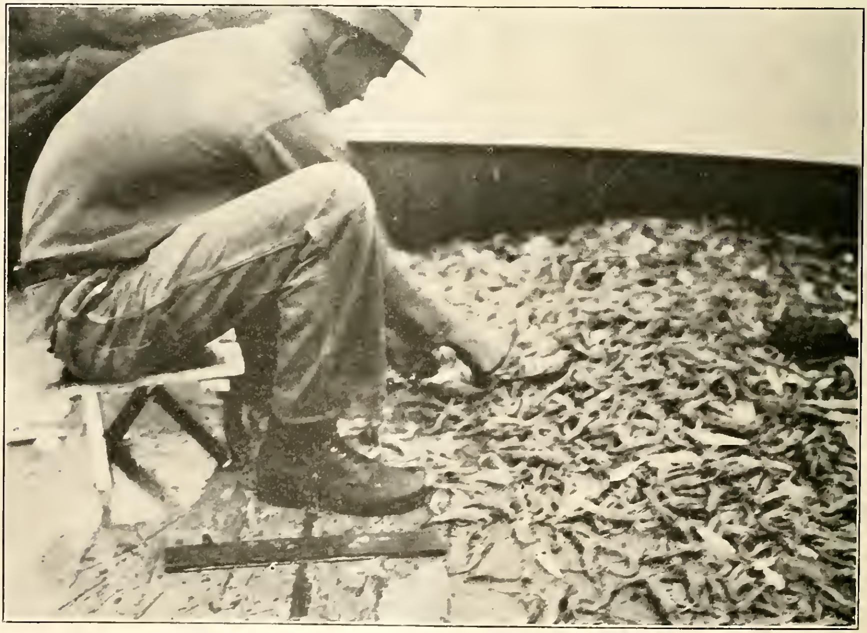


Fig. 2.—Shrimp investigations in Georgia. After an experimental haul of a 60-foot trawl the catch is carefully sorted according to species.

Federal Bureau and State Governments Cooperate in Shimp Investigations - - -

By ELMER HIGGINS
Chief, Division of Scientific Inquiry.
U. S. Bureau of Fisheries

AN INVESTIGATION of the shrimp industry of the United States by the Bureau of Fisheries is now definitely under way. Although of commercial importance for half a century and now ranking fifth in value and sixth in volume among all the fisheries, no adequate study of the shrimp has ever been made.

Three marine species of shrimp are taken for commercial puropses. Of these the most important and abundant form is *Penaeus setiferus*, which occurs throughout the range of the fishery from Beaufort, N. C., to Corpus Christi, Texas. A closely related species, not distinguished by fishermen, is *P. brasiliensis*. A third species *Xiphopeneus kroyeri*, commonly known as "sea bobs" or "seven beards," is taken commercially only on the Louisiana coast where it is used for drying when the larger species are unobtainable.

According to the most recent statistics available from the Bureau of Fisheries' canvass, the Atlantic and Gulf Coast shrimp fisheries produced more than 115 million pounds in 1928, and partial figures for 1929 indicate an increase over this total. Although large quantities of shrimp are marketed fresh and dried, the most valuable product is canned shrimp. In 1929 seventy-six establishments produced 910,000 standard cases valued at five and one-half million dollars, which is the largest pack reported since the beginning of the industry. Although prosecuted for many years, the shrimp fishery has achieved a place among the great fisheries of the country only in the past ten or fifteen years. As may be seen from the accompanying table, the greatest yield has always been taken in Louisiana, followed by Florida, Mississippi, and Georgia.

SHRIMP PRODUCTION OF SOUTH ATLANTIC AND GULF STATES

(In thousands of pounds, i. e. 000 omitted)

State	1918	1923	1927	1928	1929†
North Carolina	940	1,658	1,276	845	899
South Carolina	55	355	1,657	431	288
Georgia	5,793	10,668	12,280	9,526	12,378
Florida					
East Coast	8,868	11,024	14,779	22,507	*
West Coast	3,250	2,881	2,389	2,877	*
Alabama	1,266	3,182	5,162	5,972	4,396
Mississippi	9,147	9,879	9,234	11,767	13,101
Louisiana	13,315	24,881	40,259	53,779	49,456
Texas	164	3,421	11,832	7,774	9,415
Total	42,900	67,536	98,869	115,479	*

† Data for 1929 are preliminary and subject to change in final tabulation.

* Data not yet available.

Probably no other fishery on the Atlantic coast has experienced such a rapid development, and certainly none other has more local importance than the shrimp fishery. In the decade from 1918 to 1928 the entire yield of the fishery increased two and one-half times; it more than doubled on the South Atlantic Coast and tripled on the Gulf Coast. Rates of increase in the individual states show such phenomenal figures as four times in Louisiana, five times in Alabama, eight times in South Carolina, and 48 times in Texas. It is this startling speed of expansion that has caused greatest anxiety for the future of the industry among thoughtful persons. While the fear of ultimate depletion of the supply has been general in only a few localities, it is obvious that such rapid growth of a major food industry cannot continue indefinitely without jeopardizing the very existence of the commercial supply. It is, therefore, of utmost importance to state conservation departments charged with the responsibility of maintaining the natural resource at a state of maximum productivity to ascertain as early as possible the real condition of the shrimp fishery, the trend of abundance of stock, and the possibility or danger of increased expansion.

The passage of the five-year program bill has made it possible for the bureau to acceed to the requests of the people in the industry that an investigation be made. The fact that many years of experience have given the fishermen and canners so little knowledge of the habits of the shrimp, and that previous investigators both here and abroad have obtained such meager results, serves to emphasize the difficulty of the problems presented by its life history. It is proposed, therefore, to start with an inclusive and adequate program, the completion of which will require several years, and to attack all phases of the problem at a number of points representative of the entire range.

The Bureau of Fisheries has been fortunate in obtaining the services of Dr. Frank W. Weymouth, Professor of Physiology at Stanford University, to supervise the program of investigation. Doctor Weymouth, who was educated at Stanford and Johns Hopkins Universities, is probably equally well known as a physiologist and fishery investigator, giving courses of instruction in both branches of science at the former institution. In addition to extensive research on marine crustacea, Doctor Weymouth has studied the theoretical and applied aspects of mollusc fisheries such as the Pismo clam of California and the razor clam of the entire Pacific coast, and has had experience with the growing shrimp fishery of Alaska. In his more recent research Doctor Weymouth is attracting attention as a biometrician, in which field he has made notable contributions to the theory of the physiology of growth.

Doctor Weymouth will be assisted by Dr. James S. Gutsell of the bureau's regular staff and by Milton J. Linder, Temporary Assistant, formerly a member of the staff of the California State Fisheries Laboratory where he was engaged in fishery research for several years.

Preparatory to a more detailed formulation of the program, Doctor Weymouth and Mr. Linder, in company with Elmer Higgins, Chief of the Division of Scientific Inquiry, made a preliminary survey of the more important shrimp fishing regions. The party visited Beaufort, N. C., where observations will be made by Doctor Gutsell, and Savannah and Brunswick, on the Georgia coast, Fernandina, Jacksonville, and St. Augustine on the eastern Florida coast, and New Orleans. Subsequently Corpus Christi, Tex., was visited and the survey will be extended to all the other important ports of the region.

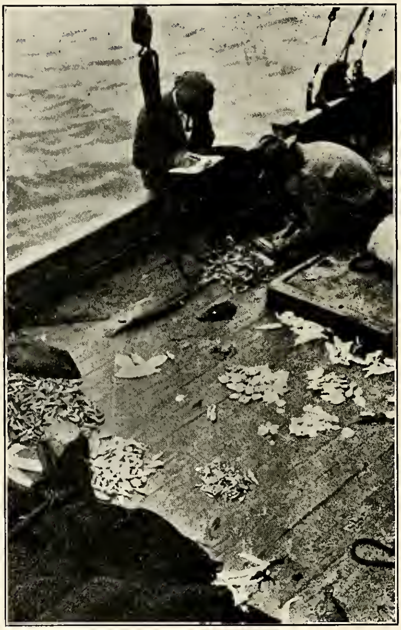


Fig. 3.—In studying the growth and migrations of the shrimp laborious and painstaking measurements of a sample of each catch are made and recorded. At times numbers of small fish are taken but many of them are of non-commercial species.

An important feature of the present plans is extensive state co-operation. The states to whom these resources belong, even though they may have no research division, often have valuable local facilities which co-ordinated and supplemented by bureau aid can obtain valuable results. A cordial spirit of co-operation has been shown by the majority of the states and active participation in the program has been undertaken by Georgia and Louisiana, and negotiations looking toward a similar action are under way in Texas.

Last September Commissioner Peter S. Twitty of Georgia took the initiative in a biological investigation of Georgia's fisheries by hiring an investigator and two boatmen. Since that time they have been operating along the entire coast of Georgia and the northern coast of Florida an experimental shrimp trawling vessel furnished by the bureau, and valuable data on the effect of shrimp fishing upon other economic species have been accumulated. A survey is being made of the shrimp fishery and detailed studies are being conducted on the growth, migrations, and habits of the shrimp, as well as the degree of injury to food and game fishes resulting from the destruction of immature fish by the shrimp trawlers in sounds and rivers. These observations have been carried out by W. W. Anderson, a graduate of the Louisiana State University, who has had experience with the shrimp of his own state.

In Louisiana a carefully drafted statute, approved July 11, 1930, required the Commissioner of Conservation to create a Bureau of Statistical and Biological Research, and appropriated the sum of $50,000 to finance the compilation and study of scientific data concerning the state's natural resources. Commissioner Robert S. Maestri has given effect to this statute by setting aside a budget sufficient for an immediate investigation of the shrimp, and plans are now complete for a joint investigation with the U. S. Bureau of Fisheries.

With the advice of the bureau, J. N. Gowanloch, formerly of Dalhousie University and of the New York Aquarium, has been selected to direct the state's share of the program. Mr. Gowanloch brings to the task an invaluable experience in the investigation of marine and fresh water fisheries, having been connected with the Biological Board of Canada for eight years, during three of which he served as a member. He is now in Louisiana engaged with Dr. Weymouth in a preliminary survey of the shrimp industry and the formulation of a detailed program of state and federal investigation. A boat and crew are being provided and a whole-hearted participation, commensurate with the importance of the state which cans nearly one-half the shrimp pack of the United States, is being assumed in the research program.

In the following statement Doctor Weymouth sets forth the aims of the co-operative investigation.

The most important question that must be studied is that of the actual abundance of the shrimp. Although the amount of shrimp taken has steadily increased, more than doubling in the decade 1918-1928, this is but a part of the story. How hard have the fishermen been working to get this increased amount of shrimp? If two times as many fishermen catch twice as many shrimp, that is an expansion of the industry. If five or ten times as many fishermen are required to catch twice as many shrimp, that is depletion. New types of nets have been introduced, apparently as in other fisheries, larger and swifter boats have come into use so that more distant fishing grounds can be visited. All these factors must be carefully studied, no small task, and from them we must determine the fishing effort put into the chatching of each ton of shrimp. If this is found to be growing year by year we must be prepared to offer the shrimp intelligent protection, but to offer such protection we must know something of the life history of the shrimp.

Peneaus, the only shrimp of importance on the South Atlantic and Gulf coasts does not support a fishery elsewhere, except in Japan, although the European shrimp fishery is based on other forms with very different habits. An attempt to sketch its life history will show how numerous are the gaps in our knowledge.

In most of the higher crustacea, as for example, the blue crab, the eggs are carried attached to the hairs of the abdominal legs for several weeks before hatching. In *Penaeus* the eggs are not so carried or are carried for such a short time that mature eggs have never been seen. For the same reason the exact time of the spawning season is not known. It is inferred that spawning occurs in the deeper offshore waters during an extended season of about five months in the summer. We know from the work of Fritz Muller and Brooks that this shrimp is unique in its development. The larva hatches in a very minute and primitive form, the nauplius, usually found only in the simpler crustacea, and passes through an unusually large series of stages all very unlike the adult shrimp. Consequently there must be a considerable time during which the larvae, at first so small that a dozen could rest on the head of a pin, are swimming about in the coastal waters. So few out of the countless millions have ever been seen that their distribution, habits, and ways of life are unknown. The young of an inch or two in length are found in the shallow water of the bayous, but few details are known about this stage of life.

It is generally believed that as the shrimp grows larger it seeks deeper water, but the irregular succession of large and small shrimp obtained by the fishermen shows that we know very little about the prcoess.

It has been claimed that they reach sexual maturity in one year, but all are not convinced by the evidence and no one knows how great an age the shrimp actually reaches.

All these and other similar questions must be understood should it become necessary to protect the shrimp, and even from an economic point of view they are of equal importance and value as a guide to industry and a safeguard against over expansion.

IRATE HUNTERS RISE TO QUELL 'QUAIL RACKET'

"Vigilantes" are again on the warpath in America—this time to deal summarily, if necessary, with lawless inroads upon game birds.

Irate sportsmen, many of them farmers, recently met at Jackson, Tenn., and formed the Madison County Sportsmen's Vigilance Association to stop illicit quail traffic and game bootlegging in that section of the state "or know the reason why," reports a bulletin of the American Game Association.

The meeting followed the uncovering at Memphis, Tenn., of the headquarters of a vast "quail racket." Game protectors raided an old warehouse and recovered 450 live native quail, after obtaining evidence that from this place quail bootleggers had in two years shipped approximately 80,000 game birds trapped illegally by farmers in Tennessee, Arkansas, Mississippi and Alabama.

Two alleged operators of the "quail ring," M. E. Bogle and Huntley May, are being sought on federal and state charges. Bogle advertised his quail business nationally in sportsmen's magazines.

Quail have been recognized as scarcer in those states in recent months than ever before.

Sunset on Barataria Bay

LOUISIANA LANDSCAPE

State Parks for Louisiana

By
Caroline Dormon

LOUISIANA landscape possesses beauty and charm distinctive and unforgettable. There is about it all a strangeness that intrigues the imagination. The very trees breathe romance; history and legend live again; and presently the visitor views the scene through the eyes of old French and Spanish explorers, delighting in this wild new world.

The Gulf Coast is alluring with alternate white crescent beaches, mysterious marshes, and gleaming little coves screened by drooping boughs and waving streamers of Spanish moss. And there are hundreds of miles of this lovely shoreline.

Inland, there is variety, but no loss of charm. On the banks of winding bayous and deep clear lakes stand ancient, dreaming live oaks; tall palms spread their feathery fans; semi-tropical flowers add their vivid hues; and vines and trees delight the eye with their year-round verdure. Within the boundaries of Louisiana are to be found the extremes of prairie and pine-clad hill, of sea-marsh, and clear rushing streams.

Strange to say, many natives of Louisiana are not yet aware of the beauty of their own state. Often they are brought to a realization of its charms by visitors' ecstatic admiration of blossoming magnolias, moss-draped live oaks, and acres of wild iris and shimmering water hyacinths.

Civilization must reach a certain point before there is a conscious appreciation of natural areas. Surrounded by wild woods, the pioneer did not realize that were he entirely deprived of them life would become oppressive. But when areas become thickly populated, there comes an insistent demand for places of recreation. Then, usually at great expense, parks are created. Valuable land is purchased, trees are planted, artificial pools put in, and every effort made to simulate nature, to create an atmosphere of largeness and freedom.

In a few instances, founders of cities have been farsighted enough to get a vision of the future, and to make provision for the recreational needs of great centers of population. Savannah, Georgia, was laid out with many parks provided for. Today these parks are filled with magnificent forest trees, and are a constant source of joy to her citizens. In addition, Savannah is considered by many to be the most beautiful city in the South.

The young city of Bogalusa, Louisiana, was planned in the same way, parks provided for before a virgin tree was cut. As the years pass, great longleaf pines standing in the heart of town will be more and more admired and revered by those who see them there. Why not a state policy along these same lines? There are still many unspoiled areas, with beautiful forests and streams, which could be set aside and preserved for the recreation of the people of Louisiana. Also, such areas would attract many visitors to the state.

This great work could be accomplished now at a comparatively small expense. The logical course is to save some of this natural beauty before it is gone, rather than strive to replace it (and ineffectively) at a cost of millions of dollars. The people are going to have state parks some day—they will demand them. The time to save is in time of plenty.

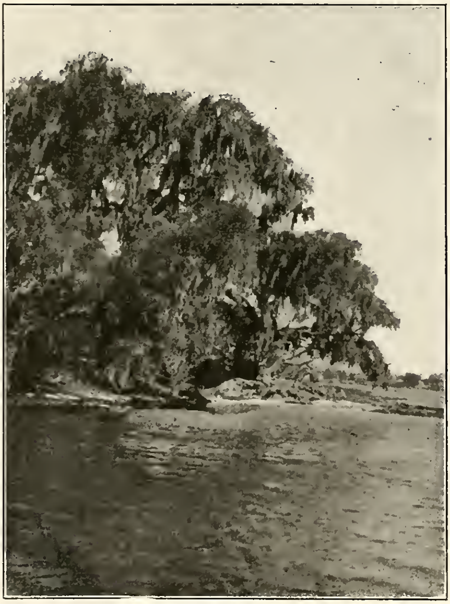
This is not merely an appeal to sentiment. A beautiful landscape is a state's best advertisement. That this is sound business has been attested by Florida, California, and others. Tourists are worth cultivating; in fact, they constitute a crop that may equal in value all other crops combined.

What Other States Are Doing

OTHERS are being fore-handed in this matter. New York has voted three bond issues for the purchase of state parks; two and a half million in 1910, ten million in 1916, and fifteen million in 1924. In Illinois, Cook County alone passed a fifteen million bond issue for the acquisition of Cook County Forest Preserve. Pennsylvania voted twenty-five million for the purchase of state forests. California passed a bond issue of six million dollars for the purpose of securing state parks, New Hampshire, two hundred thousand, to save Franconia Notch, with the fine forests surrounding the Great Stone Face. Indiana passed a law providing for a tax which in eight years will bring in eight hundred fifty thousand dollars, this to be devoted to the lovely Sand Dunes Park. As a result of her activities, Indiana has eight wonderful parks, which bring hundreds of thousands of visitors to the state each year. And so it goes. Tennessee and North Carolina are concentrating on the Great Smokies Park, Tennessee voting a bond issue of one and a half millions, North Carolina two millions, to be devoted to this vast enterprise.

In most of these cases, virgin timber has been purchased, and the areas will be maintained in a natural condition. Already these commonwealths are realizing that natural beauty has a cash value; that these parks are bringing in greater revenue than would have resulted from commercializing the waterpower and forests within their boundaries.

Stream in Sand Hills, Kisatchie Wold, Louisiana



Gulf Coast

Louisiana, too, can provide her people with unspoiled woods and streams for their recreation; and guarantee to tourists that they will find here something other than paved streets and concrete walls, replicas of which may be seen in every state.

Forests and Wild Flowers

THE FORESTS of Louisiana are outstanding. A few other states have larger trees, but as to quality, quantity, and beauty, the trees of this state cannot be surpassed. Louisiana once led the entire nation in lumber production, and still stands third. Her list of native trees includes about one hundred fifty species.

It is becoming recognized as highly important to preserve small tracts of each type of forest. After a forest has been cut over, several hundred years are required to reproduce a virgin condition; and even then the flora will probably differ somewhat from that of the original forest.

Acres of Many-Hued Iris
Along South Louisiana Bayous

Louisiana is a land of wild flowers, and some species may be found in bloom every month in the year. In spring the placid bayous of the Gulf Coast reflect masses of many-hued iris, laced with golden ragwort. At the same time, fluffy pink azalea fills every moist cleft in the sand hills, and dogwood whitens all the slopes. In between these extremes there are varied types of soils with their accompanying flora. Louisiana can boast of several native orchids of exquisite colors. (These are not aerial plants, but grow in soil.) From the February day when yellow jessamine swings its first fragrant bells, to the time when the last closed gentian fades, there is a riot of color. Even the winter woods are bright with scarlet berries, and sweet with the fringy flowers of witch hazel.

Wild Azalea

Spring in the Pine Hills

KISATCHIE WOLD

IN STRIKING CONTRAST to the area just described is the Kisatchie Wold, a great range of sand hills extending half-way across the center of the state. The former typifies a land of gentle contours, of calm, slow-moving streams, a land long claimed by civilization. The latter is wild and rugged, with splendid hills and bold rocky ledges; clear rushing streams with rapids and little waterfalls; fine springs; and primeval forests, covering many of its slopes. Here are still a few tracts of virgin longleaf pine, cut through by limpid little creeks. There is an occasional clump of magnolias or grove of beeches, ideal camp sites. Surely some of this beauty must be preserved for the people of the state who love camping, fishing, swimming, and other pleasures to be had in the real woods. Also, visitors to the state should be given an opportunity to know the majestic beauty of a virgin forest of longleaf pine. Several fine highways pass through or near this area, and from the most remote point in the state it may be reached in ten hours.

For several years there has been a movement to establish a park in this region.

THE FIRST STATE PARK

ALONG Bayou Teche, famed in song and story, lies a tract of about three hundred acres of land, which, when it is formally deeded to the state, will be the first state park of Louisiana. Here ancient live oaks spread their massive branches and dip streamers of Spanish moss into the gentle waters of the Teche. Here, legend has it, Evangeline walked, waiting to be reunited with Gabriel. In commemoration of Longfellow's great poem, this tract will be known as the Longfellow-Evangeline Park.

The late Judge Breaux of St. Martinsville pledged a gift of fifty acres of land for this park. He died, unfortunately, before his gift was put into writing, so the land had to be purchased. Mrs. A. A. Anding of Opelousas, who had fostered the movement from the beginning, raised the money for the purchase of the land. So successful was she, that, instead of fifty acres, three hundred were secured. The state legislature appropriated twenty thousand dollars of the sum that was raised.

Situated near the Old Spanish Trail, this park will be the mecca for tourists seeking typical scenery of Southern Louisiana.

A Little Creek Breaks Through a Longleaf Pine Forest, Kisatchie Wold, Louisiana

IN THE FLORIDA PARISHES

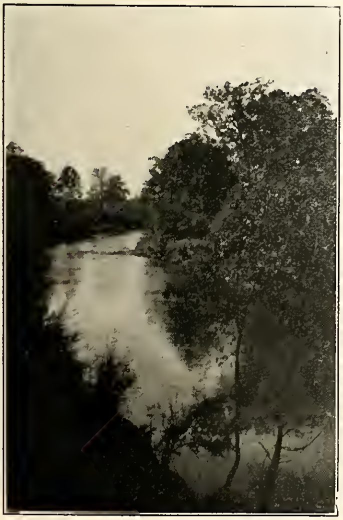
IN SOUTHEAST LOUISIANA there are beautiful forests and fine clear streams, with banks of snowy sand. The most remarkable flora in the state is to be found in these parishes. Most of the species that occur in other parts of Louisiana are to be found here, and in addition, several that do not grow west of the Mississippi. Notable among these are the spruce pine, the osmanthus, and the exquisite mountain laurel.

In this area the trees grow to an unusual size, particularly the magnolia, beech, and tulip tree.

The beautiful streams have equally beautiful names, given them by the Choctaw Indians: Bogue Lusa, Bogue Falaya, Bogue Chitto, and Tangipahoa. The country along the lovely Tangipahoa River offers many an ideal location for a state park, and located thus, it would be easily accessible from New Orleans, Baton Rouge, and other points east of the Mississippi River.

LAKE REGION OF SOUTHWEST LOUISIANA

THE SOUTHWESTERN part of the state is a region of lakes, some large, some small, but all very attractive. Probably the loveliest of all is Lake Arthur. It is only about five miles long, a widening of the Mermentau River, but it is deep and clear with high banks. Here queenly live oaks spread their welcome shade, with curtains of Spanish moss swaying in the Gulf wind. In places there are fine forests of cypress and many species of hardwoods.



Tangipahoa River

Lake Arthur

In this delightful spot, boating and fishing may be enjoyed the year round, and swimming for eight months of the year.

If the beauty of this shore is preserved, a more attractive spot could scarcely be found, ideal for rest and recreation.

LOUISIANA'S WILD LIFE REFUGES

IN PASSING along the lovely coast country, it might be well to mention that the wonderful wild life of the state is being taken care of in a number of sanctuaries, under the protection of the state Department of Conservation. The Rockefeller and Russell Sage tracts were gifts to the state. There are also the State Game Preserve, the gift of E. A. McIlhenny and Willis Ward, and the Rainey Refuge, the property of the National Audubon Society. These combined constitute the largest wild life refuge in the world. There is another large protected area in Northeastern Louisiana.

HILLS AND STREAMS OF NORTH LOUISIANA

NORTHWEST of Alexandria is a region famous for the fine fishing to be had in all its waters. It should be famous, also, for the beauty of its streams. White Sulphur Springs is well known as a local resort. On toward the Northeast, near Columbia, are impressive bluffs overlooking Ouachita River. Further yet, and one comes to another land of lakes, small, but most attractive. These, with their surrounding forests are visited by sportsmen from all over the state, and from adjoining states. This love of sport might easily be made an incentive to preserve some of this area in its natural state, providing cover for game, and, incidentally, saving its beauty.

Bayou Near Monroe, Louisiana

The central part of North Louisiana is true hill country. The highest point of land in the state is near Athens. Real hills, these, from the summits of which one gets exhilarating views of the countryside.

There are a number of fine bayous in this area, the largest of which is Dauchite, another favorite resort of the fisherman.

Lying Northwest of Shreveport is Caddo Lake, a part of which is in Louisiana. This interesting body of water is quite a resort, affording many camp sites for the people of the surrounding country.

STATE FOREST

LOUISIANA owns one state forest, a tract of about six thousand acres, near Woodworth, about twenty miles from Alexandria. This consists largely of cutover pine lands, which are being protected by the State Forestry Division, and which already show a fine growth of young pines. Here, however, are also areas of fine hardwood growth, and attractive streams. It is the purpose of the Forestry Division to set aside a part of this area for recreation. Here the visitor will learn lessons in fire prevention which will be to the value of all the parks and woodlands of the state. The Forestry Division has also planned for an arboretum here, in which will grow every tree and shrub native to the state; then visitors may find in one spot all the native species of Louisiana.

LOUISIANA'S OPPORTUNITY

JUST NOW Louisiana can provide, at small expense, a state park system equal to that of any state in the Union, thus preparing a splendid heritage for the citizens of the future. These parks will pay their own way, in fact, will add materially to the revenue of the state. And they can be so attractive and interesting that visitors will see the real charm of Louisiana, and want to come again, and again.

Usually, people wake up to the value of natural areas when they are no more. They want the trees and the shy woods birds. They want

Indian Creek, Louisiana State Forest

the wild flowers, gone forever. Or the public grows enthusiastic over saving a forest after it has become extremely valuable. Some states are paying fabulous prices for bits of forest which they wish to preserve, Louisiana can save its woodlands at one-tenth the cost of some of these.

HISTORIC SPOTS

IT IS THE AIM of the State Parks Association not only to preserve areas for their scenic value, but also spots which mark some important event in the history of Louisiana.

Such a site is Grand Ecore (meaning Great Bluff) on Red River. On this beautiful pine-crowned height was located the Confederate battery which held the river against the Federal forces in the Civil War. The gun-pits and trenches are still wonderfully preserved. Grand Ecore is located directly on the Jefferson Highway.

Some areas where notable events transpired have already been preserved by adjoining cities and towns. Through the efforts of the Daughters of the American Revolution, the people of New Orleans set aside the battlefield at Chalmette, commemorating the Battle of New Orleans, and saved for posterity its wonderful avenue of live oaks. In a similar way, the Daughters of the Confederacy have taken care of the site of the Battle of Mansfield. Through the efforts of the same organization, Shreveport has made a park of Fort Humbug, the scene of the touching sham defence of the town made by a few boys and old men during the Civil War. This park consists of sixty acres of attractive woodland, on a bluff overlooking Red River. These efforts of local bodies are greatly to be commended, as the places thus preserved are of inestimable value to the state. But these are only a few. There are others which probably can be taken care of only by being made into state parks.

Historic Grand Ecore

Dogs Must Observe Hunting Laws, Too

Now the doggies are being enlisted to conserve game for better hunting when it's hunting time.

E. Lee LeCompte, state game warden of Maryland, has announced that his deputies will strictly enforce a law making it illegal for dogs to run at large between March 1 and September 1, according to a bulletin of the American Game Association.

Savage and Modern Meet in Broadcast

The twain did meet, when a cougar hunt, representing the savage excitement of the chase, recently went out over the air from a television transmitter, one of the newest discoveries of civilization. This was the first radiovision broadcast ever made of a wild life picture produced by the U. S. Biological Survey. It was sent on a wave length of 145 meters from Station W3XK.

BIRD NOTES - - - -

By HARRY L. RHODES
Topeka, Kansas

EARLY this spring we put out bits of brightly colored yarn and shreds of cloth and string, fastening them to the lattice where the rambler rose bush grows. All of a sudden our nesting material disappeared, and soon we discovered two charming neighbors in an apple tree in the yard next door.

We caught glimpses of striking colors, orange and black, darting about in the foliage of green. It was Lord Baltimore and his lady, better known as the Baltimore Oriole. The Oriole had founded his treasure of nest material, and away to his mate he flew with a rattling call of triumph.

Much of the work of building the nest is done by the female, and so her gay-colored mate was so pleased over his find that he brought her for a look. They both tugged away at the yarn, and from the cheery conversation they carried on, we decided they were very happy over the discovery of so much fine material.

We had to replenish the store-house, and during the afternoon it was all carried away. We hope to find the nest, which will no doubt be attached to the branch of a tree by strings and wound many times around,—the ends being woven into the body of the nest. The nest of the Oriole is bag-shape, six or seven inches deep. Orioles evidently do not approve of boys making collections of their eggs, for they hang their long swinging baskets on the swaying ends of slender elm boughs.

So much do we enjoy these lovely birds that we readily forgive the male for the mischief he causes in the orchard, drilling holes in the ripest fruit with his strong bill, for he seems to enjoy the flavor of apples. But why not share the fruit with him, for well does he pay for it because of his usefulness?

Question: What is the description of the Baltimore Oriole?

Answer: The male bird is a strikingly handsome bird, but like all gayly clad birds, seems self-conscious and proud of his brilliant plumage. The head, throat, neck, and upper back are glossy black; the wings are black with white edgings; the outer ends of the middle tail feathers are black, the bases, orange; the outer tail feathers are orange with a black band; everywhere else the color is a deep, rich orange. The coloring of the female is duller.

Question: What is the principal food of the Oriole?

Answer: Beetles, bugs, ants, spiders, wasps and grasshoppers. The beetles are principally click beetles, the larvae of which are among the most destructive insects known. The bugs include plant and bark lice, both very harmful but so small and obscure as to be passed over unnoticed by most birds.

Question: Where does the Oriole spend his winters?

Answer: Central America. Breeds from the Gulf of Mexico to New Brunswick.

Birds appeal strongly to the interests and affections of mankind. They charm by their graceful forms, harmonious colors, sprightly actions, and pleasing notes. But they have an even more important claim upon our esteem, because of their great economical value. Birds feed upon practically all insect pests. They are alert and are able to move quickly and freely from place to place, keeping down the enormous increase of insect life.

An effort should be made to attract and protect birds and to increase their numbers. Where proper measures have been taken, an increase of bird population has resulted with decreased losses from depredations of injurious insects.

Food should be placed in convenient places, especially during severe winter weather. Make the yard an attractive refuge for birds to feed and nest.

Question: What grain and seed-eating birds eat suet?

Answer: Junco, White-breasted Nuthatch, Chickadee, Tree Sparrow, Blue Jay, Red-headed Woodpecker, Hairy Woodpecker.

Question: What food do robins require in winter?

Answer: Bread crumbs, ground suet, and meat scraps.

Question: What society is devoted exclusively to the study of birds?

Answer: Audubon Society.

Question: What organization teaches conservation?

Answer: Izaak Walton League.

People who have not made friends with the birds do not know how much they miss. Sometimes several varieties of birds may be seen at our feeding station at once. Two or three black-

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Raw Oysters as a Treatment for Anaemia

By JAMES N. McCONNELL
Director, Oyster Division

OYSTERS, especially eaten raw, are a cure for anaemia. They are, at least, as effective for treating anaemia as is the famed calf liver. Since they can be eaten raw more easily than raw liver, oysters have a decided edge over the anti-anaemia liver diet.

This has been discovered by a group of scientists working at the Pease Laboratory in New York, it is revealed to Dr. H. D. Pease, who, among other activities, is director of research for the Oyster Growers' and Dealers' Association of North America.

The following extract, which gives the experiment conducted by Doctors Whipple and Wolfe, is taken from an article entitled "Oysters for Anaemia," and is reprinted by permission of the Ladies Home Journal, copyright nineteen thirty-one, Curtis Publishing Company":

"Doctors Whipple and Wolfe took four groups of white rats. One group was fed on nothing but whole milk. Another group had a diet of whole milk, supplemented with one gram of dried liver a day; another group, whole milk plus a gram of dried green oysters; another group, whole milk plus a gram of dried white oysters.

"The rats fed on an exclusive milk diet eventually developed anaemia. Their pink ears, pink toes, pink eyes grew pale. Periodically a tiny snip was taken off the tip of the tail of each rat. A drop of blood from the wound was put in a little device that shows, when you squint into it, the haemoglobin content of the blood. The haemoglobin went down progressively—from a normal of 12.1—16.9 grams per cubic centimeter to as low as five grams. In another drop of blood the red corpuscles were counted. They also went down.

"But the rats whose milk was supplemented with just a little liver remained healthy and normal, with an average reading of 15.1 grams of haemoglobin. The rats that got a bit of white oyster did a little better, with an average reading of 17.2 grams. The rats that had a bit of green oyster did the best, with the high average of 21.9 grams. From the haemoglobin standpoint, these last were disgustingly healthy, healthier than when they started.

"Green oysters contain more iron than liver. But white oysters contain less. Why, then, did the rats on white oysters show a higher haemoglobin average than those on liver? Doctors Whipple and Wolf suggest: 'The iron-copper-manganese complex in oysters may be the factor which renders them particularly helpful in haemoglobin building.'

"So much for preventing anaemia. How about correcting it? I will not go into details of the

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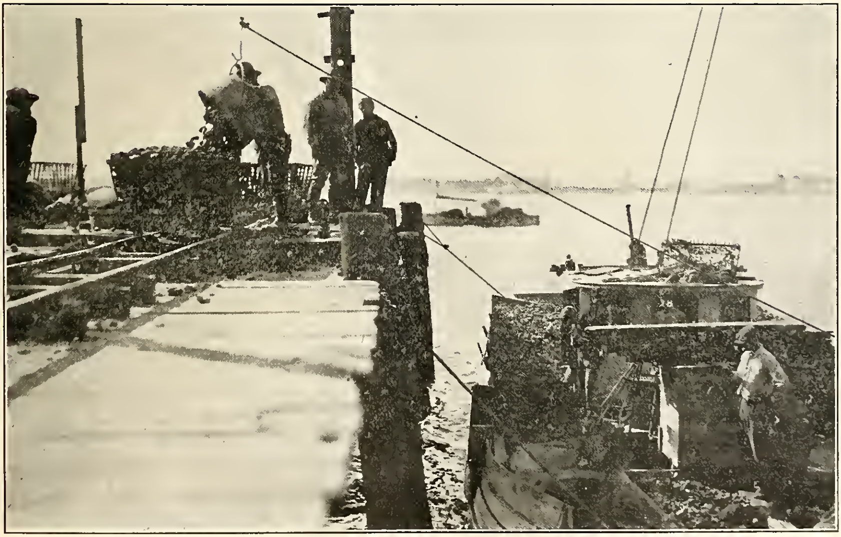

Unloading Oysters at Canning Factory

Shellfish Value As Food Lies in Mineral Content

Oysters, Clams, and Lobsters Said to Contain 200 Times as Much Iodine as Milk, Eggs, or Steak.

SHELLFISH contain a wider variety of minerals and in greater concentration than any other class of foods and contain also most of the nutritive factors necessary in the human diet, according to an oral statement at the Bureau of Fisheries, Department of Commerce. Some varieties resemble milk in being nearly complete foods, for instance, a quart of milk and a quart of oysters have very nearly the same composition and about the same food value, it was stated.

The following additional information was furnished at the Bureau.

Shellfish, which include oysters, crabs, clams, shrimp, lobsters, and scallops, contain nearly twice as much mineral as true fishes. This is in part due to the iron stored in the liver and in part to the calcium in the mantle (of mollusks), which, being the tissue from which the shell is secreted, is heavily charged with mineral salts. Investigations at the Bureau disclose that oysters, clams, and lobsters contain more iodine than other marine food used in the United States.

RICH IN IODINE

A comparison shows that oysters, clams, and lobsters contain about 200 times as much iodine as milk, eggs, or beefsteak. By using such products in the diet several times each week, the amount of iodine required by the body will be supplied. The amount necessary to prevent goiter is very small, according to some statements, only about 1 part in 3,000,000 parts of the body weight. It is important, however, that this amount be maintained. Lobster has the highest iodine content of the shellfish, and therefore of any food.

There are, in the human body, many elements the significance of which are as yet unknown. Much progress has been made during recent years in studying the part played in nutrition by calcium, phosphorus, iodine, iron, and other elements and their relation to such diseases as rickets, goiter, and anemia. It is not improbable that research in the near future will reveal equally important and specific functions in physiological processes for such elements as copper, manganese, arsenic, cobalt, nickel, and others which are claimed to be normal constituents of animal and plant tissue. Sea food contains all of these elements.

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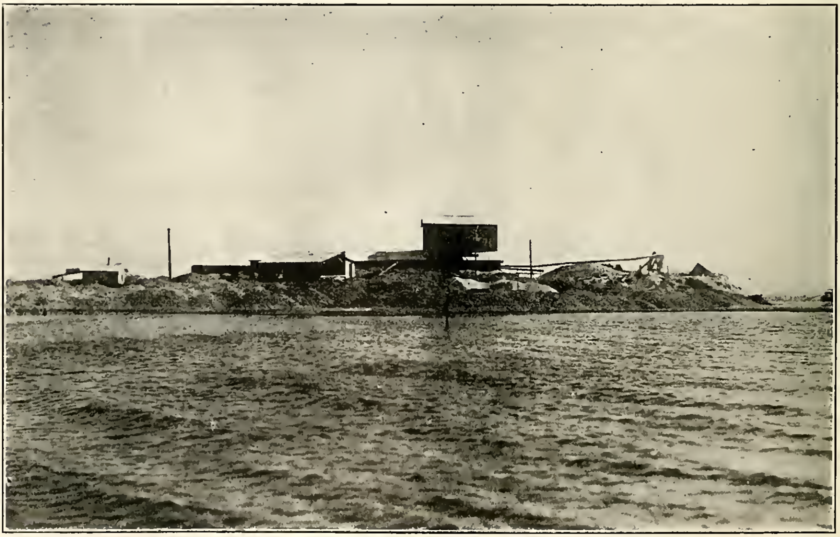

Oyster Shell Crushing Plant

Governors' Conference Requests Duty or Bar on Petroleum Imports

Oil Resources of Nation Have Not Been Seriously Depleted Nor Fully Developed, According to Petition for Relief.

RECOMMENDATIONS that a tariff be imposed on petroleum and that imports of crude oil be restricted to 20 per cent of the imports of 1928 and imports of refined products barred, were made in a petition adopted January 16 by the Governors' Oil Relief Conference in Session at Washington, D. C. The recommendations, in the form of a petition to Congress, follow in full text:

To the Congress of the United States of America: Those engaged in the petroleum industry in the United States have for a number of years exerted themselves to their utmost to solve their own problems. The success of their efforts to curtail and prorate their production in co-operation with the conservation boards of the various oil-producing States has been frustrated due to the flood of oil coming into the United States from foreign countries.

The price of crude oil has steadily declined, until over 200,000 wells are now and have been for some time producing oil below the cost of production. Notwithstanding the fact that crude oil has declined in the last three or four years, in many instances to less than one-half its former price, and the price at the refinery has likewise declined, there has been no appreciable decline in the price of gasoline and other refined products to the consumer. For example, in February, 1926, Mid-Continent crude oil of 36 gravity Baume, which is the principal source of our gasoline supply, sold for $2.04 per barrel. At this time the average price of gasoline at service stations, less the tax, in 52 representative cities of the United States, was 18.09 cents per gallon, while in February, 1929, the same quality of Mid-Continent crude oil sold for $1.20 per barrel, and the average price of gasoline, less the gasoline tax in the same 52 representative cities of the United States, was 18.39 cents per gallon.

THOUSANDS OF SMALL WELLS ABANDONED AND PLUGGED

During the past two or three years, thousands of small wells have been abandoned and plugged, with great economic loss, not only to the owners of these wells, but to future generations, because of the loss of oil reserves. There are now 250,000 wells in America producing on an average of one barrel per day, and 50,000 wells producing an average of five barrels per day, the total daily production from this source amounting to 500,000 barrels. Unless the price structure on crude oil can be remedied, and that without delay, these wells must be abandoned and plugged. They cannot be shut down because the encroachment of salt water will destroy them. Once they are plugged and abandoned, this source of crude oil will be lost forever, because of the impossibility of economically redrilling the area in which these wells are located. Such an economic and social loss to the people of America is unthinkable.

In addition to the disaster which will befall the owners of these wells, multiplied thousands of those engaged in pumping and servicing these wells will lose their employment, thus adding to our serious unemployment problem. These employes know no other business. They have spent a lifetime in their vocation, and it will be difficult, if not impossible, for them to become gainfully employed in any other.

The revenue which these wells produce and the employment which they furnish is the mainstay of large areas in our country. There is now stored in the United States nearly 700,000,000 barrels of crude petroleum and its refined products, and although the oil producers of our country have radically and drastically reduced their production during the past year, in some instances as low as 1 per cent of the potential capacity of their wells. Because of the importation of oil from foreign countries, the stocks of oil in the United States have declined only about 26,000,000 barrels, and the tremendous loss of crude oil and its refined products from evaporation, because of being stored above ground, cannot be remedied as long as oil importations continue.

SAYS PLIGHT OF INDUSTRY HAS BECOME NATIONAL

Not only the laborers engaged in and the capital invested in the oil industry is affected by the deplorable situation in which the oil producers find themselves, but in addition thereto the inability of the oil producers to go forward with their business, and the disaster which faces

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Relationship of Forestry to Coal Production in West Virginia - - -

By H. S. NEWINS
Chief Forester, Game, Fish, and Forestry Commission, State of West Virginia

Dependence of Mining Companies on Protection and Development of Timberlands Discussed by State Forester.

FORESTRY and coal mining in West Virginia are closely related and together they exert a considerable influence upon national policies of forest management for the United States.

Forestry in the United States may be likened unto "the chain which is no stronger than its weakest link" inasmuch as national policies of forestry cannot be developed successfully without first co-ordinating the varying interests of the different forest regions represented.

The great lumber industry has centered in turn upon the virgin forests of New England, Pennsylvania, New York, the southern Appalachians, the Lake States, and the South, until now it is operating upon the last remaining large virgin stand of timber which is located in the Pacific Northwest and which is characterized chiefly by Douglas fir.

There are many technical problems to be solved in preparing a national forest policy and it is evident that the conditions in each forest region must be adjusted to meet the requirements of the entire Nation. In this respect West Virginia is excellently adapted to meet national problems by virtue of being a forestry State with more than 60 per cent of the entire are of the State considered to be what is termed "potential forest land." Likewise the coal industry of West Virginia commands a powerful and far-reaching influence upon the destinies of our Nation.

In the year 1929 West Virginia produced 139,297,946 tons of coal with a total value of $125,911,816. This industry involved 107,393 employes over a period averaging 207 working days during the year and 19,731 acres of coal were worked out at this time.

Based on the average consumption of .33 cubic feet of wood per ton of bituminous coal, West Virginia used during 1929 45,968,322 cubic feet of wood to satisfy the needs of the coal mining industry of the State. This is a large requirement and it is fortunate indeed that the coal mining and forestry interests of the State are so located as to enable the continued use of West Virginia's forests in developing the almost inexhaustible supply of coal located within the State.

West Virginia is second only to Pennsylvania in the production of bituminous coal and it is a close contender with that State for first rank. The two States combined produced more than half of the output of the entire country in 1929 which was 534,988,593 tons.

Reports of the United States Government show that 152,342,217 cubic feet of round timber and 296,641,000 board feet of sawed timber were used underground by 5,205 coal mining establishments in the year 1923. This represents an increase of 18 per cent over the annual requirements as previously reported for the year 1905.

Wood is necessary in the mines for cross ties to carry the trackage into the tunnels, and the rails themselves of these tramways frequently are made of wood. Props, both round and split, are required as supports.

Cross bars are of oak, where possible, mainly white oak with some red oak and other hardwoods. Legs, caps, and posts are also required in large quantities. Sprags which are used to slow the momentum of the tram cars and also such items as lagging, constitute no small total in themselves. Sawed lumber is used in the mines largely for car plank and in many cases for brattice boards and stoppings, and also for wooden rails.

The forest lands adjacent to these anthracite coal mines are sufficient to have more than established a continuous production of desirable timber products for the mines had they been placed under forest management by the large coal companies controlling them. Instead these lands too often were culled of their best products and then fire, insects, and disease have been allowed to desolate the remaining timber stand.

West Virginia is the best equipped of all the coal producing States to supply the local needs of the mines. It has been estimated that this State has a production of wood averaging 300 board feet per capita. West Virginia was one of the leading States of the Union in the production of hardwoods during recent years and still continues to hold high rank in this respect.

The posterity of West Virginia's present forests depends largely upon the foresight of the coal land owners of the State because the enorm-

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Geological Survey Work in Last Year Broadest in 50 Years of Its History

More Than Four Million Dollars Was Spent in Highly Specialized Work, Annual Report States

SETTING FORTH on the second half-century of its history during the last fiscal year, the Geological Survey is now confronted with the prospect of steadily increasing and expanding services to the Nation, says the annual report of the Director to the Secretary of the Interior.

"The present accumulation of unanswered requests for needed work, the embarrassing abundance of untouched problems, and the broad expanse of unoccupied fields afford little basis indeed for any feeling that the activity of the Geological Survey will soon reach any state of diminishing returns," the report states.

Following in full text is an abstract of the report made public at the Department of the Interior:

The work of scientific investigation is a continuing work, and its field always expands, never contracts. So in beginning a second half-century of service to the Nation, the United States Geological Survey looks out over wider opportunities. Its fifty-first year has been the largest and broadest year of its history, in expenditures and in activities. More than $4,000,000 was expended in highly specialized service, yielding results much varied in type but alike in contributing to the industrial development of the country and widening man's understanding of his environment.

Only an observer with shortened and narrowed vision can forecast the termination or even any curtailment of such activities as those of the Geological Survey. Like the Department of the Interior as a whole, the Geological Survey has been most intimately connected with western development, and that development is today far from completed. It is true that the strictly exploratory work of the Geological Survey is now in large measure confined to Alaska but the more intensive phases of agricultural, industrial, and mining development have barely been begun in much of the western territory. Indeed, with less than half of the area of the United States covered by accurate topographic maps and with an endless variety of geologic problems awaiting attention, the exploration of the Nation's resources can hardly be regarded as completed, and their full utilization is plainly a matter of the somewhat distant future. In a year when its engineers are blazing trails in the forests of the extreme northeast and northwest corner of the country, he is a rash prophet who sees a speedy completion of the investigations of the Geological survey—he fails to realize that our country is still young.

Some measure of the increasing activity of the Geological Survey is afforded in the statistical record of its fifty-first year. As compared with the previous year, the fiscal year 1930 shows increases of nearly 10 per cent in total expenditures, nearly 20 per cent in new maps issued, and nearly 30 per cent in number of book publications. The personnel, of which more than 80 per cent is professional in type, was larger than even in the years when the Bureau of Mines was a branch of the organization. Indeed, the appropriations this year exceeded by 50 per cent of those for 1910, the last year before the Bureau of Mines was separated from the Geological Survey, and the total expenditures in 1930, including co-operative funds, were more than double those in 1910. This 20-year period since the separation of these two services specially directed to the promotion of the mining industry has been one of notable growth for both; yet because of the postwar economies their growth has not approached that of the industry they serve.

Fifty years ago Director King in writing on this same subject—the future of the Geological Survey—pointed out that we were then only "at the very threshold of the industrial life of the Republic"; and he outlined the need of facts as to the primary or raw material industries. His forecast of the future growth of the mineral industry and of the scale on which the Geological Survey should carry on its fact-finding investigations has proved surprisingly far short of the facts, both estimates being less than a quarter of what we now know to be the truth. Plainly, even that far-seeing scientist failed to grasp completely the problem of the material development of our country. And so today the vanishing point of our look ahead also may fall far short of true perspective.

The discovery of geology by industry in recent years has placed the small crops of Government scientists under new and larger obligations. The army of geologists and engineers in commercial work necessarily look to the Federal service for the collection of geologic facts and the working out of new generalizations and principles.

Practical men realize that pure research of today is applied science of tomorrow, and they ask their Government to furnish the fundamentals.

High-pressure industrial development throughout the country has involved an increasing demand for raw materials, with a correspondingly larger need of basic engineering information. It is significant that the demand for intensive study of ore possibilities is most active today in the same mining States—Colorado and Nevada—where the first mining work of the Geological Survey was done, the production of the epoch-making monographs on Leadville, Eureka, and the Comstock, which had as their purpose to meet the anxious desires "of miners as well as of students of geology and economy." The Geological Survey's special duty to help keep up the flow of raw materials to industry is greater, not less, than it was 50 years ago.

Another phase of governmental activity hardly foreseen in the beginning of the Geological Survey's existence is the degree to which the public domain is administered on a scientific basis. In the 20 years beginning in 1907 approximately $1,00,000 was spent for geologic work in areas in which the Federal Government owns coal lands. Upon this investment of appraising its property the Government is now collecting between $400,000 and $500,000 a year in royalties from coal mined from Government leases. The Government oil and gas leases have been still more productive, although the chief contribution of this service to the public interest has been the conservation of the natural resources belonging to the people. Even more important, however, than the enforcement of the best economic practices by the Federal engineers is their contribution to the conservation of life and health, both the zinc and the coal mines under Federal supervision showing better accident records than other mines in the same States. Larger attention to the Government's real estate business in classifying the unused public lands and in supervising mining leases would pay good dividends.

The investigations of water resources, which at first sought simply the answer to the agricultural problem presented by the wide expanses of arid lands in the West, now serve many purposes. Power development on a scale not approached elsewhere in the world has furnished added incentive to accurate stream measurement, and the quality as well as the quantity of water available for industrial and municipal use is now found an absolutely necessary subject of study in all parts of the United States. As the Secretary of the Interior has said, "In controlled water lies the future of our country." The exceptional drought of the present year has demonstrated to the public at large how essential an adequate supply of water is to modern life in all its phases. This field of investigation is expanding.

A similar evolution has taken place in topographic mapping. The work that produced the small-scale reconnaissance type of map has given place to more and more detailed surveying, with a product that can be used in planning engineering projects. New standards and new methods are constantly improving these maps, which as yet cover less than half the area of the United States. There is urgent need of completing these maps for use by this generation, but even were that end attained, the expansion of industrial projects and the advance of urban developments would necessitate a continuing program of revision and resurvey to make these "mother maps" of full and permanent utility.

COMPLETION URGED OF TOPOGRAPHIC MAP WORK

The present accumulation of unanswered requests for needed work, the embarrassing abundance of untouched problems, and the broad expanse of unoccupied fields afford little basis indeed for any feeling that the activity of the Geological Survey will soon reach any state of diminishing returns. Rather, the prospect of investigations that promise large returns of public benefit becomes more inviting as the work expands. Not less attractive, too, is the field of scientific inquiry that yields products needed for educational and cultural use. Popular interest in science makes a legitimate demand upon the Federal scientific bureaus.

In short, the Geological Survey is a fact-finding agency, collecting and presenting the information regarding the country's natural resources necessary for the formulation of a national plan. The demand for such facts will continue as long as our people continue to carry on commerce and industry by a more intensive conquest of Nature.

That "we are but started as a Nation" was the text of Secretary Wilbur's message at the formal opening of the project of harnessing the Colorado River. And every citizen of vision realizes that the future of this continent-wide country, blessed though it is with most of the natural advantages, must be built on more substantial foundations than those laid in the days of pioneer settlement and exploitation. Our wealth of resources must be more widely used in the light of better science and better engineering. The prospects for winning a prosperity more generally distributed and more firmly established furnish the incentive for applying science to national welfare.

GOVERNORS' CONFERENCE REQUESTS DUTY OR BAR ON PETROLEUM IMPORTS

(Continued from page 17)

them, drastically affect the laborers engaged in the manufacture of oil well supplies of all kinds and character; those engaged in transporting such supplies; the farmers whose products they consume, the mercantile establishments with whom they trade; the laborers who manufacture and the manufacturers who sell to the mercantile establishments in the oil-producing sections, the Indian wards of the Government in the oil-producing States, and so on, forming an endless chain of unemployment, until the plight of the oil industry becomes national in character and indirectly causes loss of employment to hundreds of thousands of our people throughout the Union.

SAY RESOURCES NOT YET FULLY DEVELOPED

When it is considered that nearly one-third of our national area is contained within the oil-producing States, and that 20 per cent of our population is contained in this area, the dire effects upon the Nation as a whole resulting from the depression of those engaged in this major industry can hardly be visualized. Our problem indeed is national in scope. The oil-producing States and, their municipal subdivisions are in many instances largely dependent upon monies derived from gross production taxes and oil royalties to defray the expenses of their educational and eleemosynary institutions, and a reduction of the revenue derived from these sources has already seriously impaired the efficiency of these institutions. The injurious effect upon the credit of these States and upon their securities and bonds now out-standing needs only to be mentioned to be comprehended.

Although for many years it was thought that our oil supply was nearing exhaustion, it is now definitely determined that our petroleum resources have neither been seriously depleted nor fully developed. As recently as 1915 the United States Geological Survey estimated that the future oil production of the United States would only amount to 7,600,000,000 barrels, but from 1915 to 1929, inclusive, the United States produced 8,912,633,000 barrels of oil—all of the Geological Survey estimate, plus 17 per cent. As late as 1925 the Committee of Eleven, composed of the best-informed scientists in America, estimated the future production of oil in the United States to be 5,300,000,000 barrels. Since then we have produced more than this estimate.

Conservation legislation and cooperation on the part of the producers have been retarded, and rendered of little value, because of large importations of petroleum and its refined products. True conservation can never be attained, and the present deplorable situation in the oil industry cannot be remedied unless either a tariff is placed upon crude petroleum and its products or foreign imports curtailed and reduced to an amount not exceeding 20 per cent of their 1928 imports. In support of this we quote from the 1930 report of the American Bar Association's conservation committee:

"Full protection of the public interest requires a restraint not only upon production in the United States, but also upon the importation of crude petroleum and refined products. The import question is an obstacle to proper conservation legislation."

For the above reasons, we, the representatives of the petroleum industry, the business interests, and the farmers and laborers of the oil-producing States, duly appointed and accredited by the governors thereof, in convention assembled in Washington, D. C., this Jan. 15, 1931, do hereby solemnly petition and urge Congress of the United States to enact without delay a law placing an adequate tariff upon imports of crude petroleum and its refined products, or in the alternative we pray that the Congress enact without delay a law limiting the importation of crude petroleum to 20 per cent of the amount imported during the calendar year of 1928, and that in the interest of American labor the law absolutely prohibit the importation of any of the refined products of petroleum, said imports to be allowed only from those countries from which petroleum was received during 1928.

Gasoline Found to Be Cheapest Fuel Available

The world never will have a motor fuel cheaper than gasoline is at present, Dr. H. C. Dickinson, of the United States Bureau of Standards has predicted, according to press comment.

"There isn't a chance of discovering new fuel in large quantities materially cheaper than gasoline," Dr. Dickinson was reported to have said. He added that attempts to find a cheap material which, mixed with water, could be used as automotive fuel, are virtually useless.

Petroleum resources of the world will be a main topic for discussion in the next International Geological Congress which will be held in the United States in 1932.

Louisiana Conservation Review

A monthly publication devoted to the dissemination of news and in the interest of the conservation of game, fish, and other wild life, forests, and minerals.

Distributed free by the Department of Conservation to anyone interested in the protection and utilization of the State's Natural resources.

ROB'T S. MAESTRI, *Commissioner*
126 N. O. Court Bldg., New Orleans

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JAMES P. GUILLOT ....*Editor*
N. E. SIMONEAUX ....*Associate Editor*
WILLIAM G. RANKIN ....*Business Manager*

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EDITORIAL

State Parks

THE Department of Conservation, through its divisions of Wild Life and Forestry, has undertaken to expand its activities as to sanctuaries, state parks, and wild life refuges, which are so closely related. It is now launching a campaign to secure the active cooperation of all owners of tracts of land in excess of 10,000 acres.

Act 124 of 1926 authorizing the Department of Conservation to establish, equip, and maintain upland game and wild life preserves on all lands under lease, or acquired under reforestation contract, or in any manner, by the State of Louisiana, provides:

> "That the Department of Conservation shall have authority to contract with the owners of all tracts of land acquired or accepted under reforestataion projects within the State of Louisiana for the establishment and maintainance of upland game preserves and wild life sanctuaries on such lands, providing that after such land has been selected and said contract entered into that notice describing said land by Section, Township, and Range, and advising that said land has been set aside as an upland game preserve shall be published as provided.
>
> "That the Department of Conservation of Louisiana shall have authority to lease from private persons or corporations lands within the State of Louisiana for the establishment of upland game preserves, under such terms and conditions as may be deemed advisable by said Department of Conservation, providing that a notice describing said land by Section, Township, and Range and stating that same has been leased and set aside as an upland game preserve shall be published in a newspaper or newspapers published or having a circulation in the Parish or Parishes in which said lands are situated for not less than thirty days."

In this connection the Louisiana Conservation Review takes pleasure in reprinting with the consent of the Honorable Sam Stone, Treasurer of the Louisiana State Parks Association, an interesting article under the caption: "Louisiana Landscape, State Parks for Louisiana," by Caroline Dormon.

Relief Well to Be Built to Stop Wild Oil One

DR. J. A. SHAW, director of the Minerals Division of the State Conservation Department, announced recently that under instructions of his department, the Arkansas-Louisiana Pipe Line Company, is preparing to drill a relief well in an effort to kill the wild gas well at Alto, Richland parish.

The Alto well blew out two years ago and formed a crater. The well caught fire and since has been a burning inferno. The crater is about 300 feet across and millions of feet of gas have escaped.

Dr. Shaw said a derrick for the relief well has been built and after the well is completed, it is hoped that pressure may be reduced to such extent that the wild well will be stopped.

Gasoline Trucks Convey Water to Thirsty Farmers

"The drought of 1930 long will be remembered as the time when people got their water supply from gasoline tank trucks.

"Residents of the community had a plentiful supply from the municipal system, but people who lived in the surrounding country soon began to suffer. Local managers of several oil companies cleaned the gasoline from the tanks of their motor trucks, loaded them with fresh water and drove out to relieve the thirsty population. The costs were paid by the companies."

"This is another evidence of the long since exploded idea that was so prevalent so many years ago that corporations were heartless," the Bowling Green Times commented. "Certainly the action of these large oil companies has been a wonderful feature to bringing relief to suffering humanity, and this is only one of the many instances that such corporations and companies are managed by men with big hearts."

Oil Industry, a Gigantic Undertaking, Still Grows

Seventy-one years ago this country had the Drake oil well of Pennsylvania, 69½ feet deep and producing a few barrels of oil daily. Today there are more than 300,000 wells, located in 19 states. Some are nearly 10,000 feet deep and together they produce more than 2,500,000 barrels of oil and millions of feet of natural gas every day. New wells are drilled at the rate of more than 20,000 a year and an annual expenditure exceeding $500,000,000. The average well costs $25,000 to complete.

More than 400 refineries, located in 30 states and representing 85 per cent of the world's refinery capacity, operate day and night to transform the billion dollars' worth of crude oil produced yearly into refined products worth several times that amount. These products are fifth in total value among the country's manufactured goods.

This country's first pipe line, five miles long, has become a vast underground system of trunk and gathering lines, exceeding 100,000 miles. In recent years new pipe lines have been built especially to carry gasoline from refineries, and natural gas from the wells, direct to city markets. Tank farms and bulk terminals, as well as the pipe lines themselves, provide storage for millions of barrels of petroleum and its products. In addition the industry operates 150,000 tank cars, 95 per cent of them owned by oil companies, and enough tank ships to make up 17 per cent of the U. S. Merchant Marine. Thousands of tank trucks and oil barges augment this transportation system.

Markets have been established around the world. In this country alone there are more than 350,000 service stations supplying fuels and lubricants for the nation's motor vehicles. Storage terminals, bunkering stations and numerous outlets provide fueling facilities for half the world's merchant shipping that uses oil fuel, for virtually all the vessels of war and for oil burning locomotives, heating plants, and other consumers.

The petroleum industry produces not only approximately one billion barrels of crude oil yearly, but also some 400,000,000 barrels of gasoline, 60,000,000 barrels of kerosene, 400,000,000 barrels of gas and fuel oils, 34,000,00 barrels of lubricants, and a variety of other commodities. It has developed an export trade amounting to more than $500,000,000 annually, or one-tenth of the nation's foreign business. It imports, chiefly for refining and export, some 8,000,000 barrels of crude oil yearly.

In the scope of its operations the industry probably is second only to agriculture. It employs more than 2,000,000 workers, has an invested capital exceeding $12,000,000,000, with more than 2,250,000 stockholders.

The industry itself pays more than $100,000,000 annually in state taxes on that fuel.

The industry is one of the largest purchasers and users of steel, iron, motor vehicles, pipe, stationary engines, lumber, rope, paints, rubber, brass, tin, and chemicals. Its orders for tank ships make it the second largest customer of the shipyards. It is the largest purchaser of tank cars. It ships by rail a greater tonnage of manufactured products than any other industry.

Oil Field Brines, Once a Liability, Become Real Asset

Oil field brines, long a source of annoyance because of the difficulty of disposing of them without polluting surrounding areas, have been found to be a comparatively fertile source of iodine.

Research work to prevent pollution of coastal areas in this section, disclosed the brines contained a substantial proportion of iodine sufficient for commercial production of iodides. It is held possible that in time this source of supply will equal national consumption.

An iodine recovery plant already in operation at Long Beach, Cal., is producing some 1,200 pounds a day and is to be expanded. In Louisiana wells are being drilled to obtain the brine.

Planes and Camera Aids to Geologist in Search for Oil

Seven California oil companies recently cooperated in what probably was the first large scale attempt to prospect for oil by air. For 18 days an airplane flew across an area of 2,200 square miles, obtaining the photographs from which geologists hope to learn the location of likely oil structure.

The plane maintained an altitude of some 12,000 feet. Nearly 3,500 negatives were made and more than 31,000 prints were developed. Two cameras were used on every flight, each recording about 54 mies of terrain before its 75-foot roll of film was exhausted.

With the work completed it was necessary to put the pictures together in one big map, 24 by 32 feet in size, with earth formations clearly defined.

SHELLFISH VALUE AS FOOD LIES IN MINERAL CONTENT

(Continued from page 16)

PRINCIPALLY PROTEIN

The principal food in shellfish is protein, of such composition that it is readily digested. Only a few of the proteins of fish and shellfish have been analyzed. However, by analogy, conclusions may be drawn, concerning the proteins of others. The proteins examined are complete, that is, they contain all of the amino acids required for the growth and maintenance of the human body.

Shellfish are not rich sources of fats and carbohydrates although they are not lacking in these dietary factors. The edible portions of mollusks and crustaceans range in their fat content from 1 to 2 per cent. Unlike most other types of animal food they contain carbohydrate in the form of glycogen, sometimes called "animal starch," which is a form of sugar storage in the muscles of the mollusks and crustaceans as well as in the liver of human beings and mammals.

The quantity ranges from 1 to 5 per cent. The fat of fish has a low melting point and therefore high digestive coefficient. The fat content of shellfish is not so high as that of fish, but the carbohydrate is quite unusual in sea foods. At certain seasons when they are not spawning, their fat content is higher.

The vitamin content of shellfish is of great importance. Experiments show that oysters contain the vitamins A, B, and C. Since both oysters and clams are frequently eaten in the raw state, they occupy a unique position in that they are the only foods of animal origin which in the temperate regions can take the place, in a measure, of fresh, raw, vegetable foods. It is known that the diet should include each day some food supplying vitamin C, the antiscorbutic vitamin. There is good reason to believe that at certain times and places oysters and clams have played a special role as antiscorbutic foods in the human dietary.

VITAMIN C AND IRON

Oysters are richer than milk in vitamin C and iron, but are not such good sources of fats and carbohydrates. It has been estimated that one pound of oysters, equivalent to about one pint per day, will furnish approximately 7 per cent of the energy, 28 per cent of the protein, 35 per cent of the calcium, 53 per cent of the phosphorus, and 136 per cent of the iron required in the food of an average person daily.

The percentage of total solids in the oyster approaches that recorded for milk. The proportion of the nutrients, however, is quite different in that the protein of the oysters is much higher and practically the same as that found in cooked beans. The carbohydrate of the oyster is mainly glycogen, which is unlike starch in that it is wholly digestible when eaten raw. This nutrient constitutes between 3 and 4 per cent of the oyster. The fat content is less than 1.5 per cent. The caloric value of one pound of oysters is about 250 calories, that of the average serving of raw oysters, about 50 calories; creamed on toast, 150 calories; scalloped about 185.

Oil Insecticides Safeguard West Coast Orchards

More than 5,000,000 gallons of oil are being used this year to protect the fruit crops of the Pacific Coast from blight and insect damage.

Although oil insecticides have been popular for more than a half century, the greatest development is a comparatively recent accomplishment of cooperative research undertaken by oil chemists, entomologists and plant physiologists. Highly refined oil insecticides for some time have protected the citrus groves of southern California, and now the practice of spraying with oil has extended into deciduous groves of the central section of the state and on up into the apple country of the Pacific northwest.

Motorists Pay Full Share of Highway Costs

Motorists paid more than 58 per cent, or above one-half, of the cost of building and maintaining all the state highways in this country last year, records of the U. S. Bureau of Public Roads reveal.

Of the $910,485,291 expended on state roads, the motorist contributed $565,351,180, of which $278,092,734 represented motor vehicle fees and $287,258,416 represented gasoline taxes applied to state roads. Since some 32,522 miles of state highways were improved, motorists contributed around $12,000 per mile.

Actually motorists paid more than $431,000,000 in gasoline taxes, but the balance was distributed to the counties and other subdivisions of the state for county road and other purposes.

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RELATIONSHIP OF FORESTRY TO COAL PRODUCTION IN WEST VIRGINIA

(Continued from page 18)

ous acreage under their control constitutes the bulk of the producing forests of the State.

In all of the coal-producing States the supplies of available timber for the mines have declined and the prices for the timber have rapidly mounted to more than twice the price of a few years ago. Some States have suffered more than others. Some have paved the way for more conservative use of forest lands now idle by encouraging the practice of forestry on private lands and also by Federal and State administration over large areas of forest land.

Each one of the major coal-producing States has inaugurated an office of State Forester and these offices are cooperating in their attempts to coordinate the much needed work of forestry in their respective States. The United States Government cooperates also with these States by fostering fire protection and encouraging reforestation under the measure of the Clark-McNary Law of 1924, and by research studies which are carried on under the supervision of a trained staff of foresters located at permanent experiment stations that are accessible to the coal-producing areas.

Thus the importance of forestry and coal mining in West Virginia in matters of national and industrial policies is quickly evident. This State has 9,000,000 acres of potential forest land which are not only qualified to always provide the required timber for the mining and other industries of the State but will supply when properly managed an abundance of forest products for the ready outside markets which will eventually await these products from within a short radius of the center of the State.

Motorists Scorn Economy; Demand Pep, Performance

Automotive engineers say that despite efforts made to provide gasoline economy for the motorist, he is getting little, if any, increased mileage. It appears, however, to be his own fault.

Designers of automobile engines have increased the thermal efficiency of motors by employing higher compressions, manifolds giving more uniform fuel distribution and accelerator wells, pumps and economizers on carburetors. Road builders have constructed highways which reduce the depreciation of the machine and assure greater mileage per gallon of gasoline.

But the modern motorist wants "performance," especially quick acceleration. This has necessitated the use of more powerful motors, larger rear axle reductions and smaller wheels, with the result that the motorist has a surplus of power.

Improvements of roads has led to an increase in motoring speeds. Although a motor vehicle usually operates with greatest fuel economy at 30 miles per hour, the point at which its thermal efficiency is highest and the resistance to motion is overcome, much of the motoring today is at 50 or more miles per hour. Consequently the fuel consumption is increased and air resistance is great. Congestion of traffic also leads to further waste of fuel.

What Editors Are Saying About Oil

Dissolution by the Supreme Court of Oklahoma of an injunction restraining enforcement of legislation limiting oil production in that state is a notable local victory for conservation.—Philadelphia, Pa., Bulletin.

The major oil producers, aided by the Federal Oil Conservation Board and other public and private agencies, have been waging an intensive fight against the menace of overproduction. Now, with the inauguration in several important fields of the unit system of production, by which supply and demand are equalized and waste outlawed, it begins to look as if success was in sight. An invaluable national resource must be conserved.—Wilmington, Calif., Journal.

Conservation of oil has been demanded by intelligent oil operators and private citizens for years. Now that it is becoming effective under the courageous leadership of Secretary Wilbur, the industry is undergoing an extensive reorganization.—San Diego, Calif., Tribune.

The principal beneficiaries from restrained, orderly production of oil will be the American people.—Trenton, Tenn., Gazette.

BIRD NOTES

(Continued from page 14)

capped chickadees may be cracking sunflower seeds, with a rose-breasted grosbeak perched on the top of a sunflower blossom eating the green seeds. On the same stalk we have tied a green ear of corn, cafeteria style. On this we saw one day a tufted titmouse feeding her young.

The tufted titmouse is a permanent resident; and summer and winter, seedtime and harvest, he may be found in the company of his cousins, the chickadees, hard at work hunting out insect eggs and little bugs hidden away in the crevices of trees. You may know this little Southerner by its gray coat and feathered crest as it raises and lowers it at will. The under parts of its breast are white and reddish. It is also known as the Peto bird because of its song, "Pe-toe, pe-toe, pe-toe," which comes ringing through the woodland with great clearness, and one knows that this bird is filled with energy and good spirits.

The tufted titmouse is a valuable bird and it is hard to estimate the good he does around the fruit trees. He has no bad habits or tastes to offset the good. If encouraged, he becomes domestic and like the wren lives about the garden.

Question: How large is the tufted titmouse?

Answer: About six inches in length. The head is crested, forehead black, flanks brownish.

Question: Are all warblers the same size?

Answer: The Bachman warbler is the smallest, 4½ inches. The pine warbler is the largest, 5½ inches.

Question: Is the blackbird of any value?

Answer: Yes. Nearly one-third of its food consists of insects, most of which are injurious. "The blackbird does the greatest amount of good in spring, when it follows the plow in search of grub-worms of which it is fond." (U. S. Bulletin, No. 630.)

The fear that conservation would lead to a monopoly is unfounded. Oil is one of the most highly competitive of all industries and will remain so.—Calumet, Mich., Miner.

It doesn't look as though this generation would suffer for lack of oil, but what of the next generation, the next, the next? Natural resources are not the property of any one generation.—Centralia, Kans., Journal.

Our petroleum resources, no matter how large, are irreplacable. They must be intelligently used. To allow waste is economic folly and the public will take the consequences unless it is stopped.—Frankston, Texas, Citizen.

It is to the best interests of the consumer that the production and marketing of oil be done in an orderly, efficient manner.—Watertown, N. Y., Times.

Every intelligent American will support the states, the federal government and the oil industry in preventing needless waste of a commodity which is essential to world progress.—Harvey, Ill., News-Bee.

We seem to have got so snarled up with anti-trust legislation and interpretation in this country that we can't control production even for a beneficent purpose.—Cohoes, N. Y., American.

Correction

DELTA DUCK CLUB

In our issue of January we inadvertently described the Delta Duck Club as a public shooting ground. Notice to that effect appeared on page 26 of that issue, and we take pleasure in at once correcting the impression that we created.

The Delta Duck Club is a private Club, occupying some 40,000 acres of land at the mouth of the Mississippi River between the Main Pass of Cubits Gap and Pass a la Loutre. It is in no sense a public shooting ground, as it is a club limited to one hundred members who are distributed as to residence throughout the whole United States. In place of it being a public hunting ground, it is in fact maintained by dues of $150.00 a year paid by each member, each member possessing a membership costing about $1500.00 and the members themselves during the first ten days of the hunting season may have no guests at all, and thereafter a member is limited to not exceeding two guests at one time, for which privilege of inviting a guest, a member has to contribute to the Club $10.00 a day for the first guest and $20.00 a day for the second guest, and attendance at the Club is restricted entirely to invitation by members of the Club.

The article "Louisiana Landscape" published in this issue was omitted from the March issue for lack of space.

RAW OYSTERS AS A TREATMENT FOR ANAEMIA

(Continued from page 15)

Whipple-Wolf experiments. But again there were four groups of rats—this time all anaemic at the start. One group continued on milk alone—and stayed anaemic. Another got milk and liver; another, milk and white oysters; another, milk and green oysters. The last three groups were cured of anaemia in the course of a few weeks. And again green oysters proved the best of the three curative agents.

"A note of caution: This work is conclusive as far as it goes, but it is new and it must be regarded as merely the first step.

"More work must be done with rats, and then there must be a good deal of clinical work with human beings, before oysters take an honorable place beside liver in medical practice.

"In this country people turn up their noses at green oysters. Apparently they are suspected of not being all they should. As a matter of fact, they are exceptionally rich in iron and copper. Certain regions always produce green oysters. Oyster men take them up when they are young, transfer them to beds somewhere else. After a year or so in the new environment they lose the green color. Same oysters; but now people eat them with gusto. It remains to be seen whether the discovery of Doctor Pease will overcome the old prejudice and make green oysters eagerly sought after."

This Department has already realized the importance of the oyster as a food, and through its Bureau of Scientific Research, has been making a study of the oyster in its natural habitat. Startling discoveries have been made which in the near future will be published in a scientific magazine.

We feel sure, that the experiments now being conducted throughout the oyster industry will be as favorable as those conducted in the past, and by the proper advertisement of these findings, it will only be a question of time before the public will appreciate the true value of the oyster.

Prizes Offered for Essays on Game Conservation

Floyd A. Johnson, United States Game Protector, offers $100.00 in cash prizes, to pupils of Louisiana Schools, for the best essay on:

"Why North American Bird Life Should Be Conserved For Future Generations?"

Grade school pupils, first prize $25.00. Second prize $15.00. Third prize $10.00.

High school pupils, first prize $25.00. Second prize $15.00. Third prize $10.00.

Essays must not contain over two thousand words. Typewritten on one side only of legal size plain paper. Essays must be endorsed by the pupil's teacher; stating that said essay was composed (not necessarily typewritten) by the pupil, who is submitting it in the contest.

All essays must be mailed to Contest Editor, c/o of Department of Conservation, Courthouse Building, New Orleans, La., before midnight of June 1st, 1931.

The essays will be judged by Robert S. Maestri, Commissioner of Conservation, Armand P. Daspit, Director, Division of Fur and Wild Life, J. B. Dauenhauer, Jr., Director, Division of Enforcement and Richard B. Otero, Director, Bureau of Education.

Prize winners will be announced and prizes awarded not later than August 1st, 1931. The prize winning articles will be published in the Louisiana Conservation Review, as space will permit.

Remember that neatness as well as subject matter will be taken into consideration by the judges of the contest. Be sure to number your pages and write your full name, address, age and school at the heading of your essay.

This contest is sponsored to create interest in wild life conservation, and to endeavor in a small way to bring out the importance of bird life to the people of this State.

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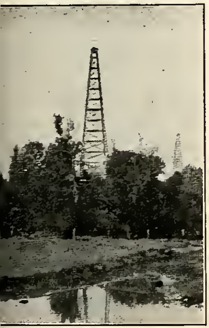

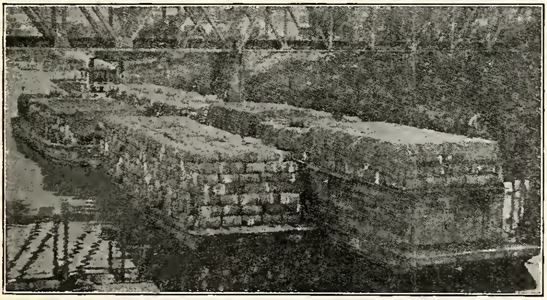

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Louisiana Tree Distribution

By V. H. Sonderegger
State Forester

DURING the past year, a great many inquiries have been reaching the Forester's office with reference to the number and variety of trees existing in this State. I am herewith giving a resume of the native species of trees that are found in Louisiana.

Approximately thirty-eight varieties and two hundred species have been established. The data has been obtained from Sargent's Manual of Trees, Sudworth's Check List of American Trees, and the notes obtained by both Major J. G. Lee and the author, while teaching the students at the summer school of forestry during the years of 1922, 1923, and 1924.

This list does not contain exotic trees. A great many of the exotics have become acclimated and reseeded, and are found adjacent to the old homesteads that were established one hundred to one hundred and fifty years ago.

Louisiana has a large variety of tree life covering the species from the tropical type to the Appalachian type. The list herewith given, gives an idea of the large variety of tree life that the State of Louisiana supports. There are many species that are not recorded but have been recognized.

Several botanists have already called our attention to the fact that the hickory group contains quite a few species that have not yet been determined. At present, thirteen known hickories are to be found. The crataegus or haw group is another group that has not been fully checked, and although there are eighteen species now known, quite a few more are in question.

The oaks now show thirty-three distinct species, but this group again has many hybrids, also hybrids that are reproducing themselves that have not yet been definitely established.

Botanists and dendrologists will find in Louisiana a splendid opportunity for studying tree life and assisting all of us in classifying some of the unknown native species and many of the exotics that have become acclimated and are now spreading gradually around the old original settlements.

The Division of Forestry is compiling a check list of all of the trees and shrubs of the State, and this material will be published in the near future. For the teachers, students, and foresters, I am herewith giving a resume of Louisiana trees and the number and species to be found under each class.

LOUISIANA TREE CLASSIFICATION

1.	Pinaceae	Pinus	6
		Taxodium	2
		Chamaecyparis	1
		Juniperus	2
2.	Liliaceae	Yucca	1
3.	Salicaceae	Populus	2
		Salix	4
4.	Myricaceae	Myrica	1
5.	Juglandaceae	Juglans	1
		Carya	13
6.	Betulaceae	Carpinus	1
		Ostrya	1
		Betula	1
7.	Fagaceae	Fagus	2
		Castanea	2
		Quercus	33
8.	Nemaceae	Ulmus	4
		Planera	1
		Celtis	1
9.	Moraceae	Morus	1
		Maclura	1
10.	Magnoliaceae	Magnolia	5
		Liriodendron	1
11.	Anonaceae	Asimina	1
12.	Lauraceae	Persea	2
		Sassafras	1
13.	Hamamelidaceae	Liquidambar	1
		Hamamelis	1
14.	Platanaceae	Platanus	1
15.	Rosaceae	Malus	3
		Amelanchier	1
		Crataegus	18
		Prunus	9
16.	Leguminosae	Ceris	1
		Gleditsia	2
		Sophora	1
		Robinia	1
17.	Anacardiaceae	Rhus	3
18.	Cyrillaceae	Cyrilla	1
		Cliftonia	1
19.	Aquifoliaceae	Ilex	5
20.	Aceraceae	Acer	10
21.	Hippocastanaceae	Aesculus	2
22.	Sapindaceae	Sapindus	1
23.	Rhamnaceae	Rhamnus	1
24.	Tiliaceae	Tilia	7
25.	Theaceae	Gordonia	1
26.	Araliaceae	Aralia	1
27.	Nyssaceae	Nyssa	4
28.	Cornaceae	Cornus	3
29.	Ericaceae	Kalmia	1
		Oxydendrum	1
		Vaccinium	2
30.	Ebenaceae	Diosphros	1
31.	Styraceae	Styrax	1
		Halesia	1
32.	Oleaceae	Fraxinus	5
		Forestiera	1
		Osmanthus	1
33.	Verbenaceae	Avicennia	
34.	Bignoniaceae	Catalpa	2
35.	Rubiaceae	Cephalanthus	1
36.	Caprifoliaceae	Sambucus	2
		Viburnum	1
37.	Symplocaceae	Symplocos	1
38.	Palmae	Sabal	1
		Washingtonia	1

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Louisiana Nature Guardians

"Upon my honor, as a Louisiana Nature Guardian, I promise to take care of all our natural friends, to guard and protect them to the best of my ability, and as far as possible influence others to do the same."

WHEN the Nature Guardian Club of Louisiana was formed several years ago, it met an instant and hearty response from the teachers and the school children all over the State. From a small interested group it has grown steadily into a mighty force of thousands of young conservationists. These children are the proud possessors of handsome lithographed badges, and certificates of membership. New Clubs are being formed each week and it is the purpose of the Educational Bureau to enroll every Louisiana boy and girl, white or colored, under the Nature Guardian banner.

HOW YOU CAN BECOME A NATURE GUARDIAN

YOUR PART

Consult your teacher.

Ask that the purpose and plans of the Nature Guardian Clubs be explained to you and the class.

Ask for an application card.

Get a responsible person to indorse it, after proving that you fully understand the duties of a Nature Guardian.

Sign the application and mail the card, or give to your teacher, to send with cards from all the class.

OUR PART

We send the application card.

We send you a handsome badge, a certificate of membership, Nature Guardian pamphlets and other literature.

This is all free, and is carried on with the purpose of instilling into the children's minds a knowledge of Louisiana's wild life and a thorough understanding of its economic value to the State.

It also aims to develop individual humanitarianism. Even within this short time an amazing improvement has been made in the mental attitude of our young folks toward the conservation and protection of Louisiana's natural resources.

NATURE GUARDIAN POEMS

MY GOLDFISH

My goldfish swim around all day,
I like to watch them at their play.
I try to keep their glass bowl clean,
So that their golden fins will gleam.

Nellie Schwab.

THE DOG

If a fellow has a dog
He should treat it right,
Never leave it in the cold
Nor lock it out at night.

Harry Moore.

BUNNIES

I care for my bunnies
All the week long
I like to see them
Grow fat, large and strong.

Winnie Daly.

The following are taken from the Monroe Morning World of March 8, 1931:

SPRING

In the fields the flowers are growing and in the skies the winds are blowing. On the hill top the trees are swaying and in the valley the cows are lowing.

Elias Watson, Lida Benton School.

THE BIRD'S BROKEN WING

Once there was a little bird
And he had a broken wing,
He sat in a tree and did not sing.
Along came a man with a short string,
He caught the little bird
And doctored his wing.

Robert Wroten, Lida Benton School.

THE ROBIN

The robin is a very large bird. The largest ones are about ten inches long but the natural size is about eight. They eat worms, bugs, insects and berries. They build their nests of mud, sticks and grasses. Their song is very pretty.

Mabel Reeves, Lida Benton School.

THE HOUSE WREN

Long, long ago when the United States was young and the Indians were the only inhabitants on this land, the wren built its home in a hole or a hollow tree. But the wren of today will not build in a tree or in a bush, they build in a house. They come back to the same nesting place every year.

The wren is not a sweet singing bird for he chatters mostly.

They fly in jumps because of their short wings.

Earl Thornton, Lida Benton School.

MY TWO PET FROGS

Once there were two frogs that came on our porch. When we turned on the light they would come up the steps and eat the bugs, and when we turned off the light they would go down.

One time before we turned on the light a little one came up. He could not see and he got lost in a crack. When we did turn on the light the big one came up and he had all of the bugs. Then when it got colder all of the frogs went away. And after they went away we would not bother with stepping on them.

Martha Ann Moore, 5-B Grade.

The following article was written by a student of the 7-A Grade following a visit from a member of the Conservation Department:

THE NATURAL RESOURCES OF LOUISIANA

The finest sulphur and salt in the United States comes from Louisiana mines. A great amount of oil is produced from our wells. Our state is one of the wealthiest in the Union. Large gravel pits have been found, and net much money to Louisiana.

Nearly all kinds of trees are found in our state. Louisiana had originally twenty two million acres of timber land; to day only four million acres remain. Laws have been made and societies organized to protect the trees.

The finest birds (singers and game) are found in Louisiana. Unfortunately men and boys have killed these birds for mere sport and not to eat, until few remain. Laws have been passed forbidding men and boys to kill certain kinds of birds, and they are beginning to thrive once more.

Fish of many kinds and in great numbers live in Louisiana waters. No finer fish exist than those of our State. Men from all over the country spend their vacations down here and catch fish. Some people have the idea that few fur bearing animals live in Louisiana; this idea is altogether wrong. Mink, fox, muskrat, and many other kinds live here. A great deal of trapping is done down here and the skins are shipped all over the United States. The money from these skins nets Louisiana millions of dollars yearly. Some of these animals destroy trees, others kill birds. These animals should be killed.

Mary Lee Smith.

Here is another paper on our Natural Resources, written after a Department member spoke to the children about Nature's gifts to our State:

NATURAL RESOURCES OF LOUISIANA

A member of the Bureau of Education came to our school and talked to us about Louisiana's natural resources. This subject proved very interesting. Every Louisianan should know Louisiana's products. Louisiana has much salt. Salt is used principally for household purposes. Our meals would be absolutely tasteless if it were not for salt. The mines are very beautiful inside. There is nothing there but rock salt, and when the electric light shines on it, it looks like a vast array of crystal.

Sulphur (when in its unrefined state) is a hard yellowish looking substance. This mineral (when in its refined state) is used principally for medical purposes. Nature has provided this mineral bountifully in Louisiana.

Practically every one is fond of fish. The Louisiana coast abounds in fish. We have fish of almost every description. Oysters are also numerous in Louisiana. Valuable pearls are sometimes found in oysters. The northerner has the canned sea foods, but, fortunately, the southerner is bountifully supplied with the fresh sea foods.

Oil is of great use to the citizens of the United States. We should feel completely lost if we did not have oil. We should not have the pleasure of going on motoring trips if it were not for oil.

Louisiana has many trees, the pine being the most numerous. Pine boards constitute a large part of houses. It is everybody's duty to protect the forests. Trees not only furnish useful articles, but also give as much enjoyment. Louisiana's forestry industry brings millions of dollars into the state annually.

Every one should speak in praise of Louisiana. Speak of its trees, salt mines, its fisheries, and other natural beauty besides the beauty of our trees. The lecturer spoke to us about Louisiana so that we should know it, be proud of it, take care of it, and speak in praise of it. Come, citizens one and all, be ideal Louisianians by knowing it and helping to advance its interests.

Mildred Holmes.

The following letter is typical of a great number received daily by the Bureau oof Education:

Department of Conservation,
124-128 N. O. Court Bldg.,
New Orleans, La.

Dear Sirs:

I am a member of the Louisiana Nature Guardians and find it to be very instructive. I am now teaching in a rural school where the children come in contact with nature everyday. I have given them talks about birds, flowers, trees, etc., and have tried to get their interest. They seem to be very much interested, in fact, I would like the whole class join this Club. The class is composed of twenty-eight lively, working children.

Please reply soon as we are anxious to join this Spring. Hoping we can be members soon,

Yours very truly,
(Miss) Frances Mouton.

A list of some of the new Nature Guardians enrolled during the last week:

Agnes Cadzow, New Orleans, La.
Walter F. Norton, Jr., New Orleans, La.
J. D. Doyal, Elizabeth, La.
Vera Eola Maddox, Elizabeth, La.
Elizabeth E. Tuenier, Elizabeth, La.
Pearl Chandler, New Orleans, La.
James Simmons, New Orleans, La.
Ivy Rockley, Elizabeth, La.
Turner Foshee, Logansport, La.
Bety Edmond, New Orleans, La.
John Spears, Elizabeth, La.
Hazel Johnson, Elizabeth, La.
Catherine Grace Huber, Elizabeth, La.
Hattie Cabrac, New Orleans, La.
Marion Unerzagt, New Orleans, La.
Irving Blanchard, Gretna, La.
Mary E. Babbitt, Longstreet, La.
Pauline Geisel, New Orleans, La.
Milford Augustine, New Orleans, La.
Paul Rodi, New Orleans, La.
Kerby Lodrigues, New Orleans, La.
Alma Woods, New Orleans, La.
Alice Junot, New Orleans, La.
Jennie Thiel, New Orleans, La.
Lillian Skero, New Orleans, La.
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Marion Bendix, New Orleans, La.
Laurence Pohlman, New Orleans, La.
Louise Schenick, New Orleans, La.
Emanuel Perry, New Orleans, La.
Mildred Oestricher, New Orleans, La.
Shirley Levis, New Orleans, La.
Leon Cannizero, New Orleans, La.
Ludwig Weimers, New Orleans, La.
Annie Poloma, New Orleans, La.
Irvin Pedau, New Orleans, La.
Walter Goff, New Orleans, La.

We shall be glad to hear from our members at any time, and shall be glad to print their poems, themes, and letters about any of the natural resources of Louisiana. We hope that our next issue will contain many interesting articles by members of our club.

Address all letters to:
NATURE GUARDIAN EDITOR,
DEPARTMENT OF CONSERVATION
New Court Building, N. O.

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Porto Rico Plans to Replenish Its Dwindling Timber Supply

FORMERLY well forested, and described early in the 16th century as "lovely as an orchard," Porto Rico today is almost denuded of forests, with all the valuable hard cabinet woods which once flourished everywhere cut out years ago. The agriucultural population, numbering nearly a million and a half and tilling about one-fourth of the island's surface, is feeling the pinch of wood scarcity, according to W. K. Williams of the Forest Service, U. S. Department of Agriculture, who has just returned to Washington after surveying forestry conditions on the island.

In small, thatched houses of the country, there is scarcity of even the simplest furniture. Often there are not sufficient benches to sit on at meals or for the women to work on, and they need tables and benches because one of the profitable industries of the island is needlework which is marketed in the States.

Children in many homes must sleep on the floor. The adults usually sleep in fiber hammocks, wrapped in mosquito netting, for the houses are constructed of poor material and are not mosquito proof. Wood is in great demand to make charcoal for use in primitive cookstoves. In efforts to relieve the shortage of wood for fuel and timber the insular forestry department is cooperating with the Forest Service, and 70 per cent of the trees grown in the insular nurseries are being distributed to small farmers for planting.

To encourage the planting of trees on farms, the insular forest nurseries are distributing trees free of charge, recommending and providing quick-growing species. Under tropical conditions some of these trees, such as the African tulip, Casuarina, and mesquite, on better soils will make a sawlog 8 to 12 inches in diameter in 10 years or less. At the same time, some of the slow-growing hardwoods are propagated for those who can afford to wait for more valuable timber crops, such as mahogany, laurel sabino, satinwood, and the like. In agricultural regions of the island assistance in planting and caring for the trees is given by C. Z. Bates, local extension forester.

Windbreaks are being planted to protect grapefruit crops in the northeastern fruit belt. In the higher tobacco lands now bare of trees, some seedlings will be planted for shade, fuel and timber.

Porto Rico grows high quality coffees under the shade of forest trees and banana trees. Most of the island's coffee shade trees were laid low by the great hurricane of 1928. Many of these trees are being replaced with seedlings.

In the sugarcane belt in the lowlands, almost surrounded the mountainous interior, needed trees are being furnished to planters, especially to improve the pasturage and shade for work animals. Some of these trees, notably the saman, produce large pods used as feed for oxen, the draft animals of the sugar plantations.

The Forest Service is developing improved methods of timber production for the Luquillo National Forest in the mountains not far from the capital, San Juan. The insular forestry department has charge of approximately 40,000 acres of coastal and mountain lands. In the coastal forests, strip cutting has been developed in the mangrove stands, the strips running north and south to admit sunlight and stimulate faster growth.

Mr. Williams visited Governor Theodore Roosevelt; C. E. Chardon, chancellor of the University of Porto Rico; Edmundo Colon, commissioner of agriculture, and other officials, and they assured him of the full cooperation of the insular government in the effort to assist the farmers in meeting their wood problems, solution of which will assist materially in raising the standards of living among all the people. The Forest Service and Extension Service of the United States Department of Agriculture, through recent Congressional action, is preparing to extend further service as rapidly as possible to the island.

Additional fire protection will be provided under the Clark-McNary Act, which hitherto had not been applied to Porto Rico. By provisions of a bill signed by President Hoover March 3, a Federal fund will be added annually to the insular fire protection fund. The Luquillo National Forest, comprising 12,500 acres will also be expanded gradually to a maximum of 50,000 acres by the purchase of lands in the northeast part of the island.

(Issued by U. S. Department of Agriculture.)

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Thym's Royal Tastes Baffle Fish Experts

"Fish tales" and mystery stories merge into one when it comes to dealing with his majesty, Thymallus Montanus, or the Montana grayling, several baffled state conservation departments indicate in reports to the American Game Association.

Thymallus, known to anglers as the fish royalty of inland waters—and to those irreverent of royalty as plain "Thym"—has extremely aristocratic tastes in food and surroundings, experts have found in trying to restore his dwindling tribe.

This, however, the experts could forgive. They have shown they do not mind kowtowing to piscatorial royalty. King Thym is a rare sport, a gamey, jaunty fighter whom sportsmen love to tackle.

So experts of the state fish hactheries have hopped about like faithful minions. They have hatched Thym's children in special glass jars of running water, instead of troughs where other fish thrive. They have striven in every way to please.

But the mystery is that for the life of them the eager experts have not been able to discover what food the finicky graylings prefer, or why they deign to abide in certain waters and turn up their noses at other homes which seem just as suitable.

In spite of valiant attempts to transplant graylings in other states, that prize game fish is found only in Alaska, Montana and a few lakes and streams of Michigan. And even here they are disappearing from waters in which they once abounded, and are refusing to return.

After experimenting with every imaginable fish food, from wild mustang meat to the finest of laboratory concoctions, in their efforts to satisfy King Thym and his offspring, the experts still report that graylings require "unknown elements which civilization seems to be taking from the waters." They still have to plant royal infants yet in the yolk stage—and hope for their princely pleasure.

The producer who will not play the game fairly with his fellow producers in restricting output for the common good, will, sooner or later, in all oil fields be controlled by a curtailment law. No man in any industry can live alone, defying the plain rules of the game.—Bolivar, N. Y., Breeze.

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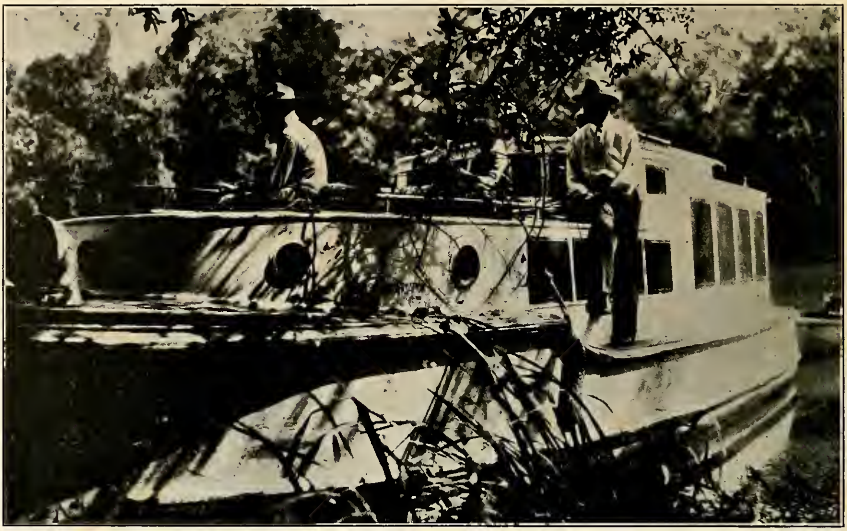

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Sunfish (perch, bream, goggle-eye, blue-gill, 5 in. or more	100 daily

SALT WATER GAME FISH

	Size Limits
Speckled Sea Trout	12 in. or more
Redfish	16 in. or more
Sheephead	10 in. or more
Flounder	12 in. or more
Hard Shell Crabs	5 in. or more
Soft Shell Crabs	4 in. or more

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$1.00 License required of all resident anglers fishing for fresh and salt water game fish with rod and reel, artificial baits, spinners, or live natural bait other than worms, grubs, clams, and mussels used on pole and line. Non-residents, $5.00; tourists or transients limited to one week, $1.00. Required of all non-resident anglers fishing for fresh and salt water fish, irrespective of tackle used.

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THE DEPARTMENT OF CONSERVATION
124 N. O. Court Bldg., New Orleans

Licenses Must Be Secured from Sheriffs' Offices

Just A' Fishin'

When the birds begin to sing
As a harbinger of Spring,
One just gets to itching
To be on his way a' fishin';
For all one's thoughts are good and clean—
Nothing seems petty, small, or mean
When you're fishin'.

Let's free our minds from worry and care;
By gettin' out in God's clean air,
And goin' fishin'.
For be it the sly cat's slimy wriggle
As your float begins to jiggle,
Or the lordly tarpon's smashing strike
As he sends his challenge for a fight,
It's a' fishin'.

So let's pay our license to the State
Forget all bitterness and hate,
And go a' fishin'.

By E. B. COPE.

When something has to be done we usually find a way to do it.

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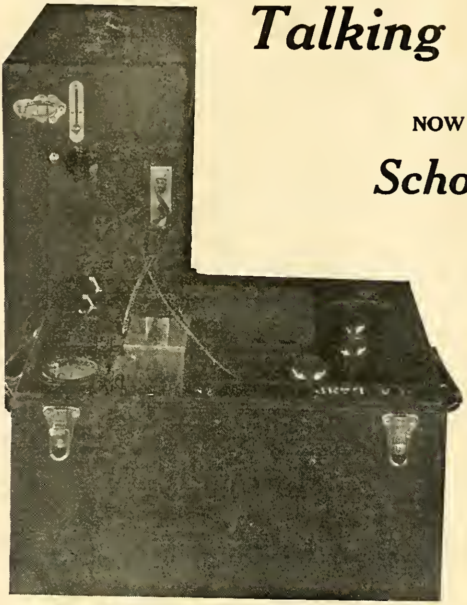

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